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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/699,087 | 10/31/2003 | Samit Kumar Basu | 131029 | 1844 |

7590 08/02/2005
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EXAMINER

KAO, CHIH CHENG G

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
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2882

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,087

Applicant(s)

BASU ET AL.

Examiner

Chih-Cheng Glen Kao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-26 is/are allowed.
- 6) ☒ Claim(s) 1-8, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

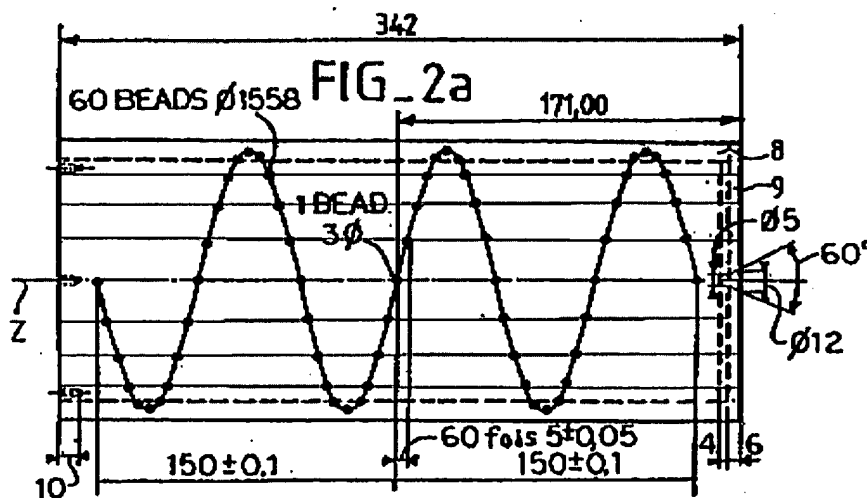
1. Claims 1-4, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Picard et al. (US Patent 5442674).

2. Regarding claim 1, Picard et al. discloses a phantom (fig. 3, #8) comprising an essentially transparent or partially transparent supporting cylindrical structure (fig. 3, #8; as evidenced by radiation from “S” to “P” through #8) and a plurality of discrete, essentially opaque markers spaced apart from one another on or in said supporting structure, said markers being spaced axially along said supporting structure and along a central axis of said supporting structure (figs. 2a and 2b) or circumferentially over not more than a revolution about said supporting structure and configured so as not to overlap when scanned over a range of view angles by a volumetric computed tomography system (fig. 3, #8, and col. 5, line 49), and said markers are configured on said supporting structure so as to permit separate identification of each said marker (col. 6, lines 38-46).

Note Figure 2a inserted in the Office Action on the next page.

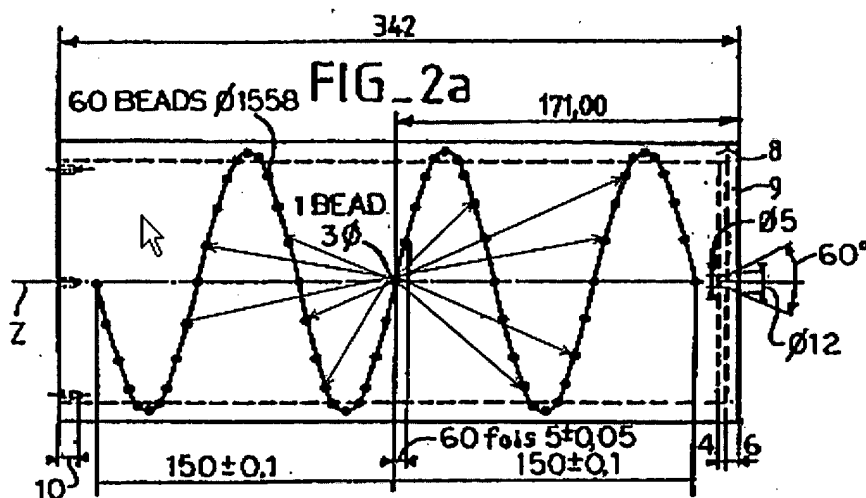
3. Regarding claims 2-4, Picard et al. further discloses the markers comprising spaced apart spheres (col. 5, line 49), and one said sphere is larger in size than others of said spheres (col. 6, lines 38-46), wherein said spheres are arranged in a helical or linear array on or in said supporting structure (fig. 3, #8).

4. Regarding claim 27, Picard et al. further discloses a phantom (fig. 3, #8) comprising an essentially transparent or partially transparent structure (fig. 3, #8, as evidenced by radiation from “S” to “P” through #8) and a plurality of discrete, essentially opaque markers spaced apart from one another on or in said supporting structure, said markers being spaced linearly along a central axis of said supporting structure (figs. 2a and 2b) and configured so as not to overlap when scanned over a range of view angles by a volumetric computed tomography system (fig. 3, #8, and col. 5, line 49), and said markers are configured on said supporting structure so as to permit separate identification of each marker (col. 6, lines 38-46), which would necessarily be in a collection of projection images when the phantom is used over and over.



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5. Regarding claim 28, Picard et al. further discloses a phantom (fig. 3, #8) comprising an essentially transparent or partially transparent structure (fig. 3, #8, as evidenced by radiation from "S" to "P" through #8) and a plurality of discrete, essentially opaque markers spaced apart from one another at varying radial depth within said supporting structure (figs. 2a and 2b) and configured so as not to overlap when scanned over a range of view angles by a volumetric computed tomography system (fig. 3, #8, and col. 5, line 49), and said markers are configured on said supporting structure so as to permit separate identification of each marker (col. 6, lines 38-46), which would necessarily be in a collection of projection images when the phantom is used over and over.



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Picard et al. as applied to claim 1 above, and further in view of Close et al. (US Patent 6000847).

Picard et al. discloses a phantom as recited above.

However, Picard et al. does not disclose a phantom made of wire.

Close et al. teaches a phantom made of wire (col. 9, lines 36-39).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the phantom of Picard et al. with the wire of Close et al., since one would be motivated to make such a modification to attenuate more radiation with a material such as lead (col. 9, line 38) as implied from Close et al. for a better image. Also note that it would have been within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Picard et al. as applied to claim 1 above, and further in view of Mitschke et al. (US Patent 6715918).

8. Regarding claim 6, Picard et al. discloses a phantom as recited above. Picard et al. further teaches markers embedded in the phantom (fig. 3, #8).

However, Picard et al. does not disclose a structure comprising a solid plastic cylinder.

Mitschke et al. teaches a structure comprising a solid plastic cylinder (col. 5, lines 40-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the phantom of Picard et al. with the plastic of Mitschke et

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al., since one would be motivated to make such a modification for better image contrast of the markings (col. 5, lines 43-46) as shown by Mitschke et al. Also note that it would have been within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

9. Regarding claims 7 and 8, Picard et al. further discloses the markers in a helical or linear arrangement (fig. 3, #8) of spheres (col. 5, line 49), and one said sphere is larger in size than other said spheres (col. 6, lines 38-46).

Allowable Subject Matter

10. Claims 9-21 contain allowable subject matter. The following is a statement of reasons for the indication of allowable subject matter.

11. Regarding claims 9 and 21, prior art does not disclose or fairly suggest a method including steps of using located marker images to assign marker locations to tracks and using the assigned tracks for determining a relative alignment between a detector, source, and rotation axis of a scanning volumetric computed tomographic system, in combination with all the limitations in each respective claim. Claims 10-20 and 22-26 contain allowable subject matter by virtue of their dependency.

Response to Arguments

12. Applicant's arguments with respect to claim 1-8, 27, and 28 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed 5/27/05 have been fully considered but they are not persuasive.

13. Applicants argue that Picard et al. does not disclose markers being spaced axially along said supporting structure and along a central axis of said supporting structure, circumferentially over not more than a revolution about said supporting structure, linearly along a central axis of the supporting structure, or placed at varying radial depth within the supporting structure. The Examiner disagrees. Picard et al. does disclose markers being spaced axially along said supporting structure and along a central axis of said supporting structure (figs. 2a and 2b), circumferentially over not more than a revolution about said supporting structure, linearly along a central axis of the supporting structure, or placed at varying radial depth within the supporting structure (figs. 2a and 2b). Therefore, Applicants' arguments are not persuasive, and the cited art remains applicable.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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